Potential Claims

1. (Currently amended) A method for assaying for potassium ions in a sample, which method comprises:

a) contacting the sample with a potassium dependent urea amidolyase (UAL), wherein the UAL ~~consumes~~ catalyzes the carboxylation of urea and forms P_i and ADP; and

b) assessing the ~~consumption~~ concentration of urea and/or the formation of P_i in step a) to ~~determine~~ assay for the presence or amount of potassium ions in the sample.

2. (original) The method of claim 1, wherein the sample is a biological sample.

3. (original) The method of claim 2, wherein the biological sample is a blood sample.

4. (original) The method of claim 3, wherein the blood sample is a plasma, serum, red blood cell, or whole blood sample.

5. (original) The method of claim 1, wherein the UAL catalyzes the formation of Pi in the following net reaction:

$$\text{Urea} + \text{ATP} + HCO_3^- + 4H_2O \xrightarrow[K^+,\, Mg^{2+}]{\text{UAL}} \text{ADP} + P_i + 2HCO_3^- + 2NH_4^+ + OH^-.$$

6. (original) The method of claim 1, wherein the amount of P_i formed correlates with the amount of potassium ions in the sample.

7. (original) The method of claim 1, which is used in a prognosis or diagnosis of a disease or disorder.

8. (original) A method for assaying for potassium ions in a sample, which method comprises:

a) contacting the sample with a first composition comprising a potassium-dependent urea amidolyase;

b) contacting the sample with a second composition comprising urea; and

c) assessing the production of P_i to determine the presence or amount of potassium ions in the sample.

9. (original) The method of claim 8, wherein the sample is a biological sample.

10. (original) The method of claim 9, wherein the biological sample is a blood sample.

11. (original) The method of claim 10, wherein the blood sample is a plasma, serum, red blood cell, or whole blood sample.

12. (original) The method of claim 8, wherein the first composition further comprises glycogen, phosphorylase a, oxidized β-nictinamide adenine dinucleotide (NAD), phosphoglucomutase, glucose-6-phosphate dehydrogenase (G-6-PDH), 2-(4-iodophenyl)-3-(4-nitrophenyl)-5(2,4-disulfophenyl)-2H-tetrazolium (WST-1), and 1-methoxy-5-methyl-phenazinium methyl sulfate (PMS), and the second composition further comprises adenine triphosphate (ATP) and $MgCl_2$.

13. (original) The method of claim 12, wherein the second composition further comprises a protein.

14. (original) The method of claim 13, wherein the protein is bovine serum albumin (BSA).

15. (original) The method of claim 12, wherein the second composition further comprises a buffer.

16. (original) The method of claim 15, wherein the buffer is $NaHCO_3$.

17. (currently amended) The method of claim ~~12~~ 27, wherein the detectable product is formazan.

18. (original) The method of claim 8, which is used in a prognosis or diagnosis of a disease or disorder.

19-26. (Canceled)

27. (new) The method of claim 12, wherein the assesment of production of P_i comprises the detection of a detectable product.